What is claimed is:

1. An apparatus for measuring the viscosity of a sample fluid comprising:

a holding vessel operable to receive the sample fluid and a weighted fluid, the weighted fluid having a greater specific gravity than the sample fluid;

a floating spacer buoyantly disposed in the weighted fluid such that an interface between the sample fluid and the weighted fluid is defined between the holding vessel and the floating spacer; and

a capillary tube in fluid communication with the holding vessel such that a pressure drop is created across the capillary tube when at least a portion of the sample fluid is forced therethrough.

2. The apparatus as recited in claim 1 wherein the weighted fluid further comprises a non-inert, interactive fluid with respect to the sample fluid.

3. The apparatus as recited in claim 1 wherein the sample fluid further comprises a Newtonian fluid.

4. The apparatus as recited in claim 1 wherein the sample fluid further comprises hydrocarbons.

5. The apparatus as recited in claim 1 wherein the weighted fluid further comprises water.

6. The apparatus as recited in claim 1 wherein the weighted fluid further comprises a salt having a cation selected from the group consisting of sodium, calcium, magnesium and cesium.

7. The apparatus as recited in claim 1 wherein the weighted fluid further comprises a salt having an anion selected from the group consisting of chloride and bromide.

8. The apparatus as recited in claim 1 wherein the sample fluid is forced through the capillary tube at a fixed flow rate.

9. The apparatus as recited in claim 1 wherein the floating spacer further comprises a material that is non-reactive and non-corrosive with respect to the sample fluid and the weighted fluid.

10. The apparatus as recited in claim 1 wherein the floating spacer further comprises titanium.

11. The apparatus as recited in claim 1 further comprising an oven which provides a thermostatic environment, wherein the capillary tube and holding vessel are positioned within the oven.

12. A system for measuring the viscosity of a sample fluid comprising:

an oven operable to provide a thermostatic environment;

a first holding vessel operable to receive the sample fluid and a weighted fluid, the weighted fluid having a greater specific gravity than the sample fluid;

a first floating spacer buoyantly disposed in the weighted fluid such that an interface between the sample fluid and the weighted fluid is defined between the first holding vessel and the first floating spacer;

a second holding vessel operable to receive the sample fluid and the weighted fluid;

a second floating spacer buoyantly disposed in the weighted fluid such that an interface between the sample fluid and the weighted fluid is defined between the second holding vessel and the second floating spacer;

a capillary tube in fluid communication with the first and second holding vessels; and

a pump in fluid communication with the first and second holding vessels such that the pump forces the weighted fluid into and out of the first and second holding

vessels, thereby forcing at least a portion of the sample fluid through the capillary tube and creating a pressure drop thereacross.

13. The apparatus as recited in claim 12 wherein the weighted fluid further comprises a non-inert, interactive fluid with respect to the sample fluid.

14. The apparatus as recited in claim 12 wherein the sample fluid further comprises a Newtonian fluid.

15. The apparatus as recited in claim 12 wherein the sample fluid further comprises hydrocarbons.

16. The apparatus as recited in claim 12 wherein the weighted fluid further comprises water.

17. The apparatus as recited in claim 12 wherein the weighted fluid further comprises a salt having a cation selected from the group consisting of sodium, calcium, magnesium and cesium.

18. The apparatus as recited in claim 12 wherein the weighted fluid further comprises a salt having an anion selected from the group consisting of chloride and bromide.

19. The apparatus as recited in claim 12 wherein the pump forces the weighted fluid into and out of the first and second holding vessels at a fixed flow rate.

20. The apparatus as recited in claim 12 wherein the floating spacer further comprises a material that is non-reactive and non-corrosive with respect to the sample fluid and the weighted fluid.

21. The apparatus as recited in claim 12 wherein the floating spacer further comprises titanium.

22. A method for determining the viscosity of a sample fluid comprising the step of:

loading a weighted fluid and the sample fluid into a holding vessel that is in fluid communication with a capillary tube, the weighted fluid having a greater specific gravity than the sample fluid;

buoyantly disposing a floating spacer in the weighted fluid such that an interface between the sample fluid and the weighted fluid is defined between the holding vessel and the floating spacer;

forcing at least a portion of the sample fluid through the capillary tube;

measuring the pressure drop across the capillary tube; and

determining the viscosity of the sample fluid.

23. The method as recited in claim 22 wherein determining the viscosity of the sample fluid further comprises utilizing Hagen-Poisueille's law to calculate the viscosity.

24. The method as recited in claim 22 wherein loading the sample fluid into the holding vessel further comprises loading between about 0.5 mL and 20 mL of the sample fluid into the holding vessel.

25. The method as recited in claim 22 further comprising performing a calibration by determining a tube constant of the capillary tube.

26. The method as recited in claim 22 further comprising maintaining the capillary tube and the holding vessel in a thermostatic environment.

27. The method as recited in claim 22 further comprising maintaining the mass transfer between the weighted fluid and the sample fluid to no more than three percent.

28. The method as recited in claim 22 further comprising maintaining the mass transfer between the weighted fluid and the sample fluid to less than two percent.

29. The method as recited in claim 22 further comprising maintaining the mass transfer between the weighted fluid and the sample fluid to less than one half of one percent.

30. The method as recited in claim 22 further comprising maintaining the mass transfer between the weighted fluid and the sample fluid to less than two tenths of one percent.

31. An apparatus for minimizing mass transfer between a first fluid and a second fluid, the second fluid having a greater specific gravity than the first fluid, the apparatus comprising:

a holding vessel operable to receive a volume of the first fluid and a volume of the second fluid; and

a floating spacer buoyantly disposed in the second fluid such that an interface between the first fluid and the second fluid is defined between the holding vessel and the floating spacer.

32. The apparatus as recited in claim 31 wherein the holding vessel further comprises a cylindrical shape.

33. The apparatus as recited in claim 31 wherein the interface between the first and second fluids further comprises an annular interface.

34. The apparatus as recited in claim 31 wherein the first fluid further comprises a sample fluid and the second fluid further comprises a weighted fluid.

35. The apparatus as recited in claim 31 wherein the floating spacer provides a close fitting relationship with the holding vessel.

36. The apparatus as recited in claim 31 wherein the holding vessel is positioned in a capillary tube viscometer.

37. The apparatus as recited in claim 31 wherein the second fluid further comprises a non-inert, interactive fluid with respect to the first fluid.

38. The apparatus as recited in claim 31 wherein the first fluid further comprises a Newtonian fluid.

39. The apparatus as recited in claim 31 wherein the first fluid further comprises hydrocarbons.

40. The apparatus as recited in claim 31 wherein the second fluid further comprises water.

41. The apparatus as recited in claim 31 wherein the second fluid further comprises a salt having a cation selected from the group consisting of sodium, calcium, magnesium and cesium.

42. The apparatus as recited in claim 31 wherein the second fluid further comprises a salt having an anion selected from the group consisting of chloride and bromide.

43. The apparatus as recited in claim 31 wherein the floating spacer further comprises a material that is non-reactive and non-corrosive with respect to the sample fluid and the weighted fluid.

44. The apparatus as recited in claim 31 wherein the floating spacer further comprises titanium.

45. A method for determining the viscosity of a sample fluid comprising the step of:

loading a weighted fluid and the sample fluid into a holding vessel that is in fluid communication with a capillary tube, the weighted fluid having a greater specific gravity than the sample fluid and the weighted fluid being an interactive fluid with respect to the sample fluid;

forcing at least a portion of the sample fluid through the capillary tube;

measuring the pressure drop across the capillary tube;

maintaining the mass transfer between the weighted fluid and the sample fluid to no more than three percent; and

determining the viscosity of the sample fluid.

46. The method as recited in claim 45 wherein the step of maintaining the mass transfer between the weighted fluid and the sample fluid to no more than three percent further comprises maintaining the mass transfer between weighted fluid and the sample fluid to less than two percent.

47. The method as recited in claim 45 wherein the step of maintaining the mass transfer between the weighted fluid and the sample fluid to no more than three percent further comprises maintaining the mass transfer between weighted fluid and the sample fluid to less than one half of one percent.

48. The method as recited in claim 45 wherein the step of maintaining the mass transfer between the weighted fluid and the sample fluid to no more than three percent further comprises maintaining the mass transfer between weighted fluid and the sample fluid to less than two tenths of one percent.

49. The method as recited in claim 45 further comprising buoyantly disposing a floating spacer in the weighted fluid such that an interface between the sample fluid and the weighted fluid is defined between the holding vessel and the floating spacer.

50. The method as recited in claim 45 further comprising maintaining the capillary tube and the holding vessel in a thermostatic environment.